

U. S. DEPARTMENT OF COMMERCE

ROY D. CHAPIN, Secretary

BUREAU OF STANDARDS

LYMAN J. BRIGGS, Acting Director

DIAMOND CORE DRILL FITTINGS

(SECOND EDITION)

COMMERCIAL STANDARD CS17-32

[Issued November 15, 1932]

Effective date for new production
and clearance of existing stocks, August 15, 1932



A RECORDED STANDARD OF THE INDUSTRY

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1932

PROMULGATION STATEMENT FOR DIAMOND CORE DRILL FITTINGS

On May 27, 1929, at the instance of the Diamond Core Drill Manufacturers Association, a joint conference of representative manufacturers, drilling contractors, and general interests adopted a commercial standard for diamond core drill fittings which was accepted by the industry and published as Commercial Standard CS17-30.

On March 5, 1932, in accordance with the recommendation of the standing committee, a proposed revision of this commercial standard was circulated to the industry for written acceptance. The industry has since accepted this revision and approved for promulgation by the Department of Commerce, through the Bureau of Standards, the standard as shown herein which is identified as Commercial Standard CS17-32.

This recommendation was effective for new production and clearance of existing stocks from August 15, 1932.

Promulgation recommended.

I. J. FAIRCHILD,
Chief, Division of Trade Standards.

Promulgated.

LYMAN J. BRIGGS,
Acting Director, Bureau of Standards.

Promulgation approved.

ROY D. CHAPIN,
Secretary of Commerce.

DIAMOND CORE DRILL FITTINGS

COMMERCIAL STANDARD CS17-32

GENERAL

The following nomenclature, symbols, dimensions, tolerances, and types are recommended as standard for diamond core drill fittings:

The four sizes of diamond core drill casing shall be known as EX, AX, BX, and NX, and these symbols shall also be applied to the appropriate bits, core barrels, and casing couplings as given in Figures 2 to 7, inclusive. Rod and rod coupling sizes are known as E, A, B,

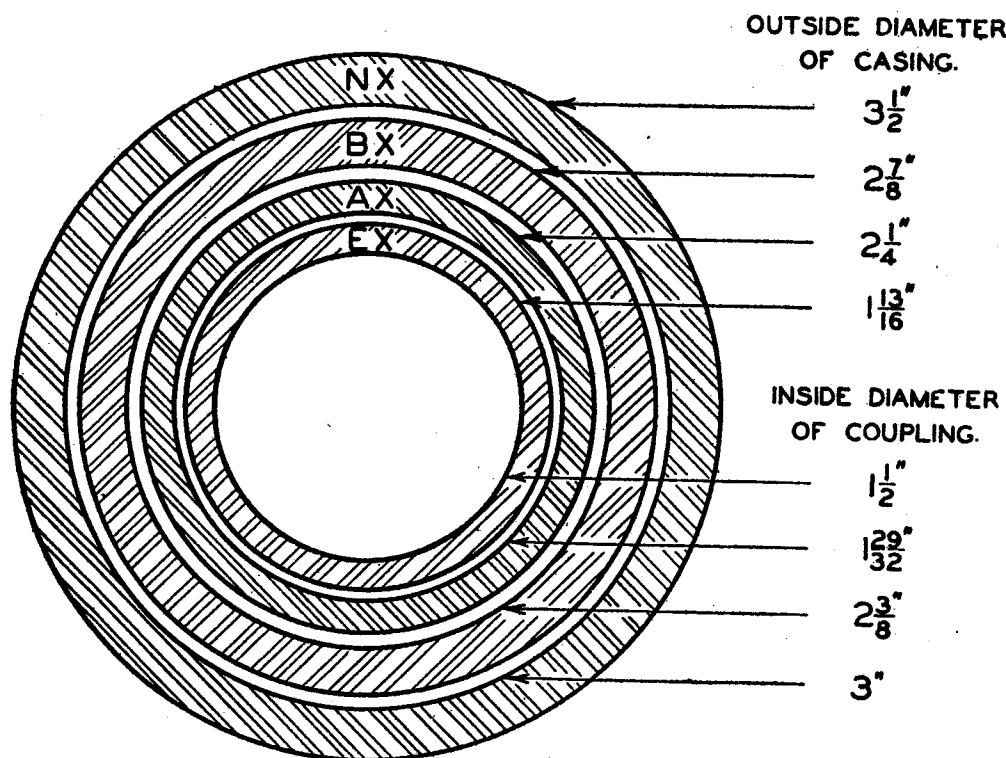


FIGURE 1.—Section through casing couplings

and N. Nominal dimensions are given in Table 1 and illustrated in Figure 1.

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TABLE 1.—Nominal dimensions

Size designation		Casing O. D.	Casing coupling		Casing bit O. D.	Core-barrel bit O. D.	Drill rod O. D.	Diameter of hole made by core-barrel bit ¹	Approximate diameter of core
Casing, casing coupling, casing bits, C. B. bits	Rod, rod couplings		O. D.	I. D.					
EX	E	Inches 1 13/16	Inches 1 13/16	Inches 1 1/2	Inches 1 27/32	Inches 1 7/16	Inches 1 9/16	Inches 1 1/2	Inches 7/8
AX	A	2 1/4	2 1/4	1 29/32	2 5/16	1 27/32	1 5/8	1 3/4	1 1/4
BX	B	2 3/4	2 3/4	2 3/8	2 15/16	2 1/16	1 29/32	2 3/8	1 5/8
NX	N	3 1/2	3 1/2	3	3 9/16	2 15/16	2 3/8	3	2 1/4

¹ Assuming hole 1/32 inch larger than bit and listing diameters to nearest 1/8 inch.

Casings made flush on the outside when connected with couplings shall be known as "flush coupled casing"; when connected without couplings, shall be known as "flush joint casing."

Core barrels shall be known as "single-tube core barrels," "rigid-type double-tube core barrels," or "swivel-type double-tube core barrels," as the case may be.

Single-tube and double-tube core-barrel bits shall be identical as regards outside diameter and thread.

The term "reaming shell" shall be used in preference to "swell coupling." The bit thread of reaming shells and core shells shall conform to the standard bit thread.

The approximate sizes of standard cores are: NX, 2 1/8 inches; BX, 1 5/8 inches; AX, 1 1/8 inches; EX, 7/8 inch. Larger cores are obtainable with special fittings.

DETAIL REQUIREMENTS

The dimensions and tolerances for rod couplings, drill rods, core-barrel bits, casing couplings, casings, and casing bits are as given in Figures 2 to 7, inclusive.

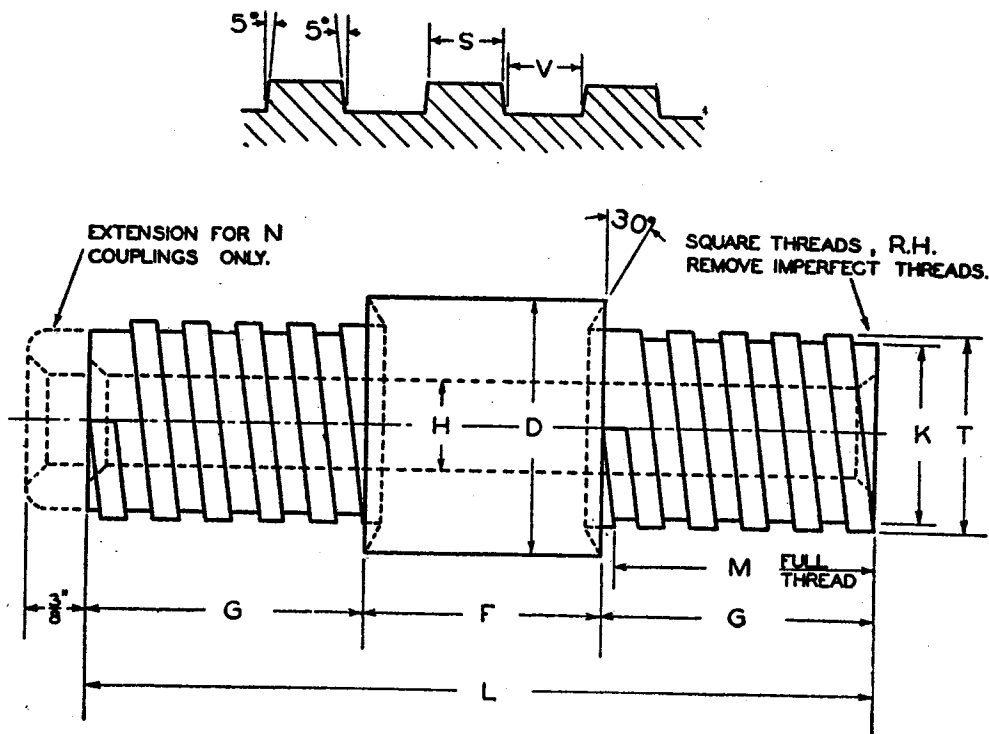


FIGURE 2.—Rod couplings

TABLE 2.—Rod couplings

Designating symbol	D	F	G	H	Threads per inch	K	
						Maximum	Minimum
E.....	Inches 1 1/16	Inches 1 1/2	Inches 1 1/2	Inch 7/16	3	Inches 0.874	Inches 0.870
A.....	Inches 1 5/8	Inches 1 1/2	Inches 1 3/4	Inch 9/16	3	Inches 1.139	Inches 1.134
B.....	Inches 1 7/8	Inches 1 1/2	Inches 1 7/8	Inch 5/8	5	Inches 1.280	Inches 1.275
N.....	Inches 2 3/8	Inches 1 1/2	Inches 2 3/8	Inch 1	4	Inches 1.686	Inches 1.681

Designating symbol	L	M	S		T		V	
			Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
E.....	Inches 4 1/2	Inches 1 7/16	Inch 0.1608	Inch 0.1563	Inches 0.999	Inches 0.998	Inch 0.1657	Inch 0.1617
A.....	Inches 5	Inches 1 11/16	Inch .1608	Inch .1563	Inches 1.264	Inches 1.263	Inch .1657	Inch .1617
B.....	Inches 5 1/4	Inches 1 13/16	Inch .0941	Inch .0897	Inches 1.405	Inches 1.404	Inch .0990	Inch .0950
N.....	Inches 6 1/4	Inches 2 1/16	Inch .1164	Inch .1120	Inches 1.874	Inches 1.873	Inch .1212	Inch .1173

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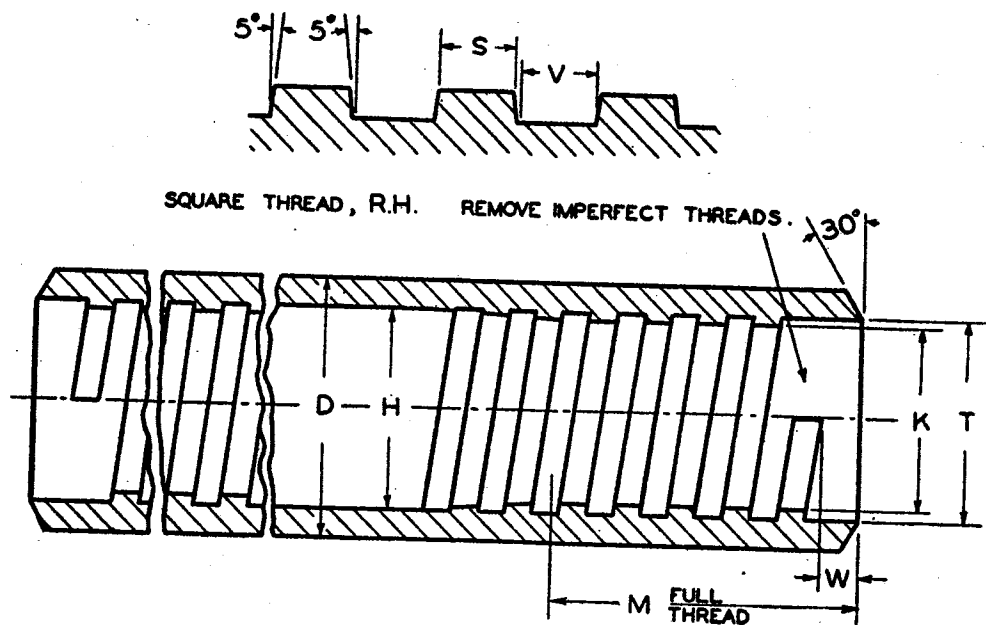


FIGURE 3.—Drill rod

TABLE 3.—Drill rod

Designating symbol	D	H	K		M	S		T		Threads per inch	V		W
			Maximum	Minimum		Maximum	Minimum	Maximum	Minimum		Maximum	Minimum	
E	Inches	Ins.	Ins.	Ins.	In.	Inch	Inch	Ins.	Ins.		Inch	Inch	Inch
A	1 1/16	27/32	0.877	0.876	1 5/8	0.1608	0.1544	1.002	1.001	3	0.1680	0.1617	1/4
B	1 5/8	1 1/64	1.142	1.141	1 7/8	0.1608	0.1544	1.267	1.266	3	0.1680	0.1617	1/4
N	1 3/4	1 1/32	1.283	1.282	2	0.0941	0.0877	1.408	1.407	5	0.1014	0.0950	1/4
	{Max. 2.385 {Min. 2.375}	2	1.689	1.688	2 1/2	0.1163	0.1099	1.877	1.876	4	0.1236	0.1173	5/16

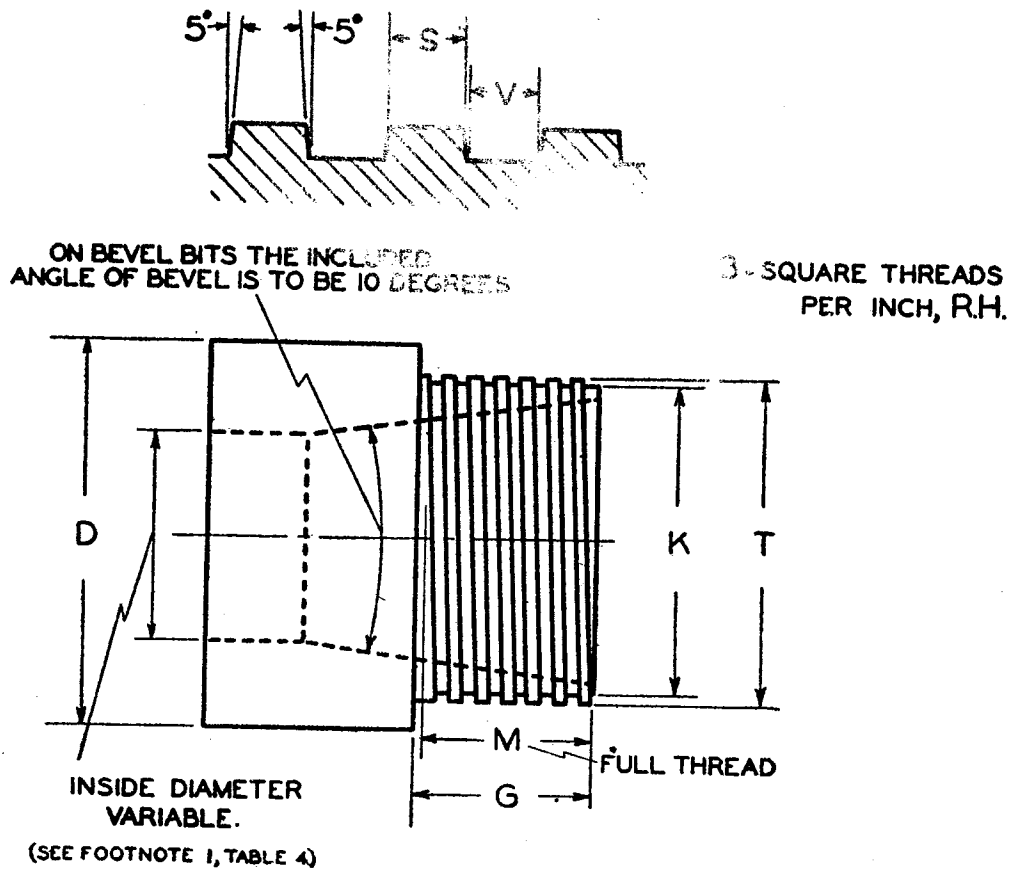


FIGURE 4.—Core-barrel bits

TABLE 4.—Core-barrel bits.¹

(8 threads per inch R. H.)

Designating symbol	D		G	K		M ²	S		T		V	
	Maximum	Minimum		Maximum	Minimum		Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
EX.....	Inches 1.439	Inches 1.435	Inches 7/8	Inches 1.124	Inches 1.119	Inches 3/4	Inch 0.0594	Inch 0.0550	Inches 1.186	Inches 1.185	Inch 0.0642	Inch 0.0603
AX.....	1.845	1.841	1	1.499	1.494	7/8	.0594	.0550	1.561	1.560	.0642	.0603
BX.....	2.314	2.310	1 1/4	1.967	1.962	1	.0594	.0550	2.030	2.029	.0642	.0602
NX.....	2.939	2.935	1 1/2	2.592	2.587	1 1/8	.0594	.0550	2.655	2.654	.0642	.0602

¹ Inside diameters for use in manufacturing and not as a "commercial standard" are as follows: EX, 7/8 (0.877 to 0.873) inch; AX, 1 1/2 (1.220 to 1.216) inches; BX, 1 1/4 (1.639 to 1.635) inches; and NX, 2 3/4 (2.189 to 2.185) inches.

² Threads shall be full form to within 1/8 inch of shoulder.

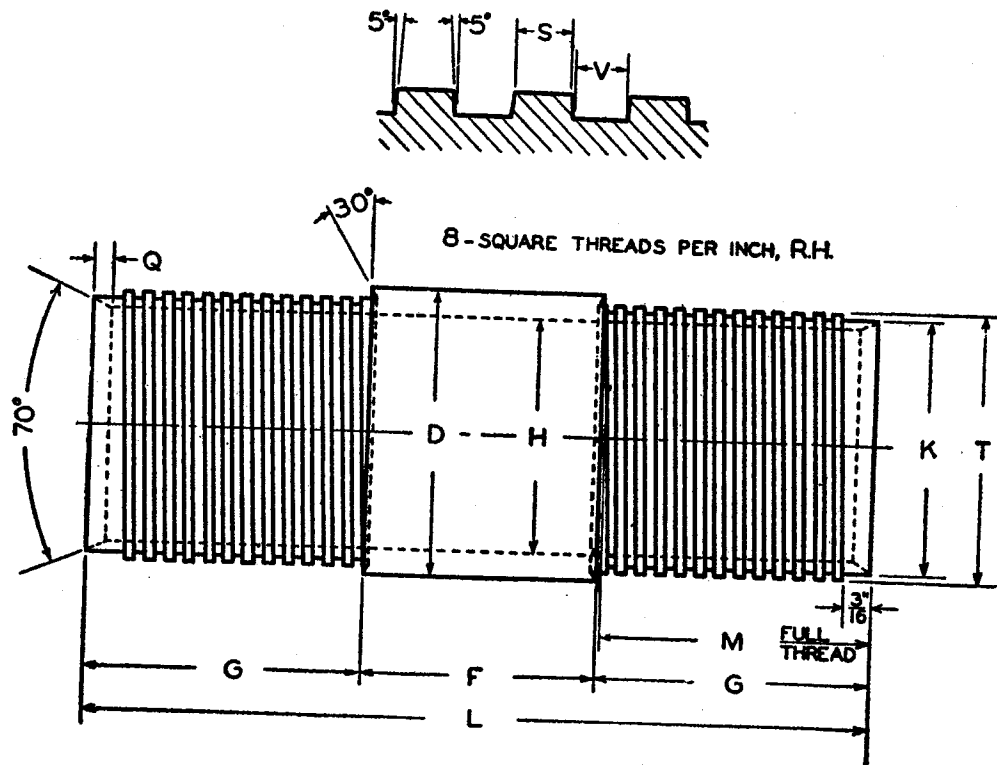


FIGURE 5.—Casing couplings

TABLE 5.—Casing couplings

(8 threads per inch R. H.)

Designating symbol	D	F	G	H		K		L	M ¹
				Maximum	Minimum	Maximum	Minimum		
EX.....	Inches 1 3/16	Inches 1 1/2	Inches 1 3/4	Inches 1.502	Inches 1.498	Inches 1.655	Inches 1.650	Inches 5	Inches 1 5/8
AX.....	2 1/4	3	2	1.908	1.904	2.061	2.056	7	1 7/8
BX.....	2 7/8	3 1/2	2 1/8	2.377	2.373	2.592	2.587	7 3/4	2
NX.....	3 1/2	3 1/2	2 3/8	3.002	2.998	3.217	3.212	8 3/4	2 1/4

Designating symbol	Q	S		T		V	
		Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
EX.....	Inch 3/8	Inch 0.0594	Inch 0.0550	Inches 1.717	Inches 1.716	Inch 0.0642	Inch 0.0602
AX.....	3/16	.0593	.0549	2.124	2.123	.0642	.0602
BX.....	1/4	.0580	.0538	2.686	2.685	.0629	.0588
NX.....	1/4	.0580	.0536	3.311	3.310	.0629	.0588

¹ Threads shall be full form to within 1/8 inch of shoulder.

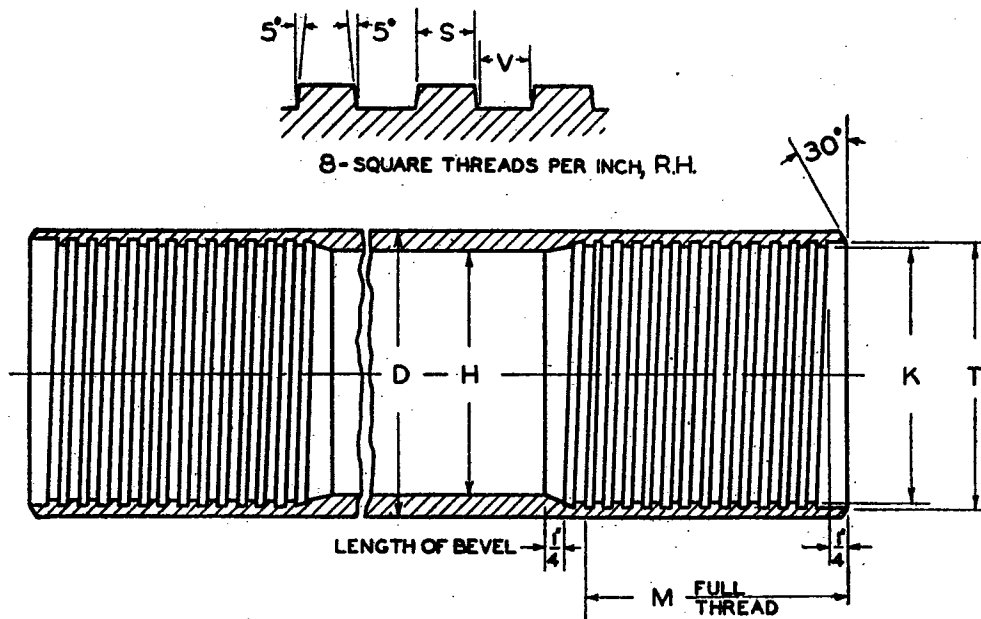


FIGURE 6.—Casing

TABLE 6.—Casing

(8 threads per inch R. H.)

Designating symbol	D	H	K		M ¹	S		T		V	
			Maximum	Minimum		Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
EX.....	Inches $1\frac{3}{16}$	Inches $1\frac{1}{8}$	Inches 1.658	Inches 1.657	Inches $1\frac{7}{8}$	Inch 0.0593	Inch 0.0529	Inches 1.720	Inches 1.719	Inch 0.0667	Inch 0.0602
AX.....	Inches $2\frac{1}{4}$	Inches 2	Inches 2.064	Inches 2.063	Inches $2\frac{1}{2}$	Inch .0593	Inch .0529	Inches 2.127	Inches 2.126	Inch .0665	Inch .0602
BX.....	Inches $2\frac{7}{8}$	Inches $2\frac{1}{2}$	Inches 2.595	Inches 2.594	Inches $2\frac{3}{4}$	Inch .0579	Inch .0515	Inches 2.689	Inches 2.688	Inch .0652	Inch .0589
NX.....	Inches $3\frac{1}{2}$	Inches $3\frac{1}{8}$	Inches 3.220	Inches 3.219	Inches $3\frac{1}{2}$	Inch .0579	Inch .0515	Inches 3.314	Inches 3.313	Inch .0652	Inch .0589

¹ Threads shall be recessed $\frac{1}{4}$ inch.

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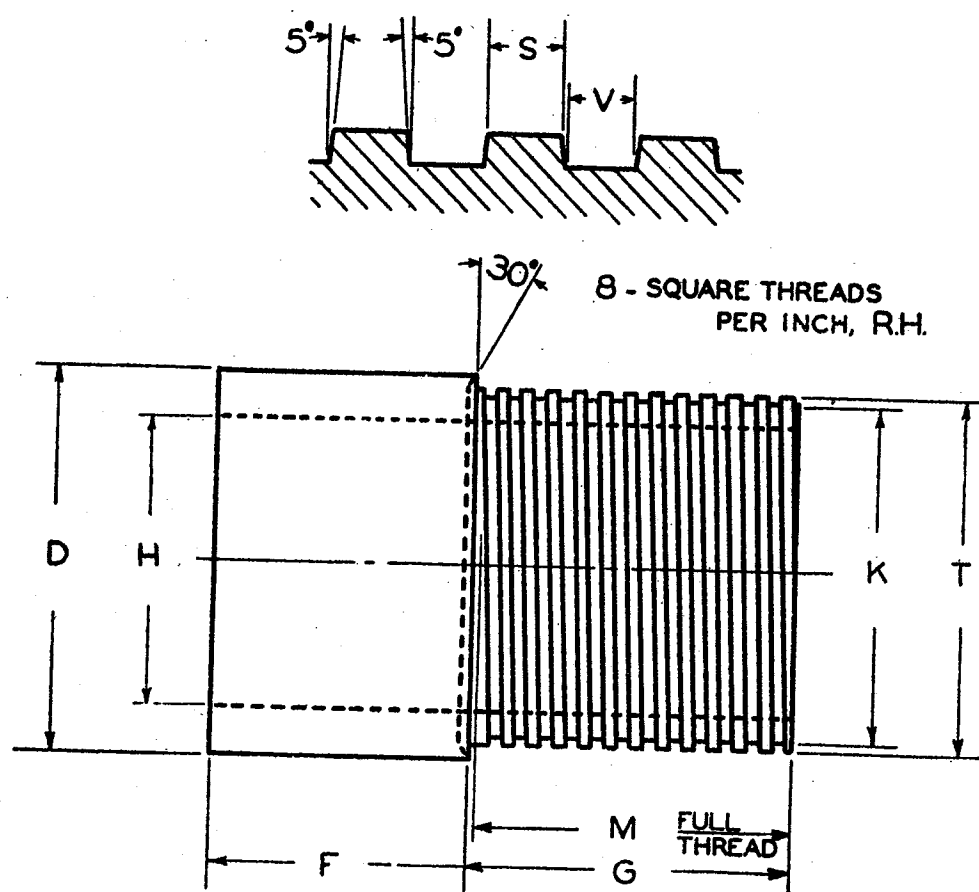


FIGURE 7.—Casing bit

TABLE 7.—Casing bit

(8 threads per inch R. H.)

Designating symbol	D		F	G	H (Ap- prox- imate)	K	
	Maxi- mum	Mini- mum				Maxi- mum	Mini- mum
EX.....	Inches 1.845	Inches 1.841	Inches 1 1/4	Inches 1 1/4	Inches 1 1/4	Inches 1.655	Inches 1.650
AX.....	2.314	2.310	1 1/2	1 1/2	1 1/2	2.061	2.056
BX.....	2.939	2.935	1 3/4	1 3/4	1 3/4	2.592	2.587
NX.....	3.564	3.560	2	2	2	3.217	3.212

Designating symbol	M ¹	S		T		V	
		Maxi- mum	Mini- mum	Maxi- mum	Mini- mum	Maxi- mum	Mini- mum
EX.....	Inches 1 1/8	Inch 0.0594	Inch 0.0550	Inches 1.717	Inches 1.716	Inch 0.0642	Inch 0.0602
AX.....	1 1/8	.0593	.0549	2.124	2.123	.0642	.0602
BX.....	1 1/8	.0580	.0536	2.686	2.685	.0629	.0588
NX.....	1 1/8	.0580	.0536	3.311	3.310	.0629	.0588

¹ Threads shall be full form to within 1/8 inch of shoulder.

STANDING COMMITTEE

The following standing committee was appointed by the general conference of May 27, 1929:

H. C. Johansen, chairman, Sullivan Machinery Co.
R. D. Longyear, E. J. Longyear Manufacturing Co.
B. H. Mott, Mott Core Drilling Co.
Fred Lindhe, Boyles Bros., Vancouver, British Columbia, Canada.
E. L. Derby, jr., Cleveland Cliffs Iron Mining Co.
T. D. Sturges, Pennsylvania Drilling Co.

FIRST REVISION

On the recommendation of the standing committee, a revised draft was circulated to the industry for written acceptance on March 5, 1932. The revised draft included the new tolerances adopted by the Diamond Core Drill Manufacturers' Association. In general, the changes constitute minor refinements which have developed as a result of experience with the standards and which do not change the important nominal dimensions as set forth in the first edition of the pamphlet. As announced to the trade under date of May 14, 1932, the revised standard was accepted and authorized by the industry for publication as Commercial Standard CS17-32.

EFFECTIVE DATE

The effective date for new production and clearance of existing stocks was set for August 15, 1932.

ACCEPTANCE OF COMMERCIAL STANDARD

This sheet, properly filled in, signed, and mailed to the address indicated, will be authority to record your organization as an acceptor of the Commercial Standard.

Date

DIVISION OF TRADE STANDARDS,
BUREAU OF STANDARDS,
Washington, D. C.

GENTLEMEN: Having considered the statements on the reverse of this sheet, we hereby record our acceptance of the commercial standard as our standard practice in the production¹ } of diamond core drill fittings for one year distribution¹ } use¹ } beginning or until the present standard is revised. (Date)

Realizing that the value of any commercial standard obviously depends upon the amount of active support it receives, we will use such effort as may be appropriate to secure additional adherence whenever the opportunity offers.

Furthermore, we plan to cooperate with the standing committee in every reasonable way to assist it in the intelligent consideration of constructive revisions to be presented for adoption in accordance with established commercial standards procedure.

Signature
(Above signature should be in ink)

(Kindly typewrite or print the following lines)

Title

Company

Street address

City and State

¹ Please designate which group you represent by drawing lines through the other two. In the case of related interests, trade papers, colleges, etc., desiring to record their general approval the words "In principle" should be added after the signature.

TO THE ACCEPTOR

In signing this acceptance blank, please bear the following points clearly in mind:

1. *Adherence.*—The Department of Commerce has no regulatory powers with respect to commercial standards. Instead, commercial standards are based on voluntary cooperation. To make this specific standardization program operate as a satisfactory example of self-government in industry, it is highly desirable that this recommendation be kept distinct from any plan or method of governmental regulation or control.

2. *Responsibility of the industry.*—This program was developed by the industry on its own initiative. Its success depends wholly on the active cooperation of those concerned. The department cooperates only when requested to do so, and only to such extent as appears desirable in order to secure the most beneficial results for all concerned.

3. *The acceptor's responsibility.*—You are entering into an entirely voluntary agreement whereby the members of the industry, together with the distributors and consumers of the product, and others concerned hope to secure the benefits inherent in commercial standardization. It is obvious that instances will occur in which it will be necessary to supply or purchase items not covered in the standard. The purpose is, however, to secure wider support for nationally recognized standards covering grade, quality, and other characteristics of products. Consumers can make the program a success if in their purchasing they will make a definite and conscientious effort to specify in terms of this commercial standard.

4. *The department's responsibility.*—The function performed by the Department of Commerce is fourfold: First, to act as a coordinator to insure adequate consideration of the needs of all interests; second, to supply such assistance and advice in the development of this program as past experience with similar programs may suggest; third, to solicit and record the extent of adoption and adherence to the standard; and, fourth, to add all possible prestige to this standardization movement by publication and promulgation if and when it is adopted and accepted by all elements directly concerned.

5. *Acceptance by industry.*—When a commercial standard has been accepted by manufacturers, distributors, and users whose production, distribution, and use of the named commodity represent sufficient volume to insure the initial success of the program, it is indorsed and published by the Department of Commerce. If, in the opinion of the standing committee of the industry and/or the Department of Commerce, the volume of indicated support of any standard is insufficient to justify its indorsement and publication, the department reserves the right to withhold its indorsement and postpone publication until sufficient support has been obtained.

ACCEPTORS

ASSOCIATIONS

Diamond Core Drill Manufacturers Association, New York, N. Y.
National Association of Purchasing Agents, New York, N. Y.

FIRMS

Acker Drill Co., Scranton, Pa.	Joraleman, Ira B., San Francisco, Calif. (in principle).
Allentown Portland Cement Co., Cata- sauqua, Pa.	Krebs (Inc.), Charles E., Charleston, W. Va.
American Metal Co. (Ltd.), The, New York, N. Y.	Lehigh University, Bethlehem, Pa. (in principle).
American Zinc Co. of Tennessee, Mas- cot, Tenn.	Longtin Diamond Core Drilling Co., Daniel G., San Francisco, Calif.
Anaconda Copper Mining Co., Butte, Mont.	Longyear Co., E. J., Minneapolis, Minn.
Appalachian Electric Power Co., Blue- field, W. Va.	Longyear Manufacturing Co., E. J., Marquette, Mich.
Baltimore Department of Public Works, Baltimore, Md.	Lynch Bros., Seattle, Wash.
Bance Drilling Co., New York, N. Y.	Madera Irrigation District, Madera, Calif.
Best Bros. Keenes Cement Co., Sun City, Kans.	Massachusetts Institute of Technology, Cambridge, Mass. (in principle).
Broadview Oil & Gas Corporation, Minneapolis, Minn.	McIntyre Porcupine Mines (Ltd.), Schumacher, Ontario, Canada.
Canadian Longyear (Ltd.), North Bay, Ontario, Canada.	Mexican Corporation, The S. A., Teziutlan Unit, Aire Libre, Puebla, Mexico.
Chedsey, Wm. R., State College, Pa.	Michigan Drilling Co., Detroit, Mich.
Cleveland-Cliffs Iron Co., The, Ish- pening, Mich.	Midwest Refining Co., Denver, Colo.
Cole Exploration Co., T. F., Deerwood, Minn.	Mining Journal, The, Phoenix, Ariz. (in principle).
Cole & McDonald Exploration Co., Virginia, Minn.	Mott Core Drilling Co., Huntington, W. Va.
Colorado Springs Co., The, Denver, Colo.	Mott Machine & Manufacturing Co., Huntington, W. Va.
Continental Diamond Drilling Co. (Ltd.), Rouyn, Quebec.	Natural Rock Asphalt Corporation, Natural Rock, Ky.
Diamond Coal Co., The, Albuquerque, N. Mex.	Newland, D. H., State geologist, Albany, N. Y.
Doermann-Roehrer Co., The, Cincin- nati, Ohio.	New Mexico Construction Co. (Inc.), Denver, Colo.
Eagle-Picher Mining & Smelting Co., Ruby, Ariz.	New York Authority, Port of, New York, N. Y.
Engineers & Engineering, Philadelphia, Pa. (in principle).	O'Brien (Ltd.), M. J., Cobalt, Ontario, Canada.
France Stone Co., Toledo, Ohio.	Pacific Portland Cement Co., San Francisco, Calif.
Georgia Marble Co., The, Tate, Ga.	Panuco Exploration Co., Denver, Colo.
Gypsy Oil Co., Tulsa, Okla.	Pennsylvania Drilling Co., Pittsburgh, Pa.
Halifax Department of Public Works & Mines, Halifax, Nova Scotia.	Pentecost, G. J., Scranton, Pa.
Healey (Inc.), Philip J., New York, N. Y.	Pine Hill Coal Co., Minersville, Pa.
Hermann Diamond Drills, Alton, Ill.	Preston School of Industry Hospital, Ione, Calif.
Howell & Co. (Inc.), F. J., Pittston, Pa.	
Hydraulic-Press Brick Co., St. Louis, Mo.	

- Producers & Refiners Corporation,
Parco, Wyo.
- Riley Drilling Co., The, New York,
N. Y.
- Roberts, Hugh M., Duluth, Minn.
(in principle).
- Robinson Diamond Drilling Co., Van-
couver, British Columbia, Canada.
- Service Steel Co., Los Angeles, Calif.
- Seymour Finance Committee, Sey-
mour, Iowa.
- Shell Petroleum Corporation, St. Louis,
Mo.
- Smith & Travers Co. (Ltd.), Sudbury,
Ontario, Canada.
- South Carolina Geological Survey,
Columbia, S. C. (in principle).
- Southern Coal, Coke & Mining Co.,
Belleville, Ill.
- Sprague & Henwood (Inc.), Scranton,
Pa.
- Sullivan Machinery Co., Chicago, Ill.
- Sullivan Machinery Co., Michigan
City, Ind.
- Syracuse Intercepting Sewer Board,
Syracuse, N. Y.
- Terrell Bartlett Engineers, The, San
Antonio, Tex.
- United Verde Copper Co., Jerome, Ariz.
- University of Idaho, School of Mines,
Moscow, Idaho (in principle).
- University of Notre Dame, Notre
Dame, Ind.
- University of Pittsburgh, Pittsburgh,
Pa. (in principle).
- University of Texas, College of Mines
& Metallurgy, El Paso, Tex.
- University of Utah, Salt Lake City,
Utah.
- University of Washington, Seattle,
Wash.
- Victor-American Fuel Co., Denver,
Colo.
- Washington, State College of, Pullman,
Wash.
- Western Gulf Oil Co., Los Angeles,
Calif.
- Witherbee, Sherman, Port Henry, N. Y.
- Yale University, New Haven, Conn.
(in principle).

GOVERNMENT

- Office of Public Buildings & Public Parks
of the National Capital, Washington,
D. C. (in principle).
- U. S. Engineer Office, Chattanooga,
Tenn.
- U. S. Engineer Office, Jacksonville, Fla.
- U. S. Commerce Department, U. S.
Bureau of Mines, Washington, D. C.
(in principle).
- U. S. Treasury Department, Washing-
ton, D. C.

COMMERCIAL STANDARDS

CS No.	Item	CS No.	Item
0-30.	The commercial standards service and its value to business.	23-30.	Feldspar.
1-32.	Clinical thermometers (second edition).	24-30.	Standard screw threads.
2-30.	Mopsticks.	25-30.	Special screw threads.
3-28.	Stoddard solvent.	26-30.	Aromatic red cedar closet lining.
4-29.	Staple porcelain (all-clay) plumbing fixtures.	27-30.	Plate glass mirrors.
5-29.	Steel pipe nipples.	28-32.	Cotton fabric tents, tarpaulins and covers.
6-31.	Wrought iron pipe nipples (second edition).	29-31.	Staple seats for water-closet bowls.
7-29.	Standard weight malleable iron or steel screwed unions.	30-31.	Colors for sanitary ware.
8-30.	Plain and thread plug and ring gage blanks.	31-31.	Red cedar shingles.
9-29.	Builders' template hardware.	32-31.	Cotton cloth for rubber and pyroxylin coating.
10-29.	Brass pipe nipples.	33-32.	Knit underwear (exclusive of rayon).
11-29.	Regain of mercerized cotton yarns.	34-31.	Bag, case and strap leather.
12-29.	Domestic and industrial fuel oils.	35-31.	Plywood (hardwood and eastern red cedar).
13-30.	Dress patterns.	36-31.	Fourdrinier wire cloth.
14-31.	Boys' blouses, button-on waists, shirts and junior shirts.	37-31.	Steel bone plates and screws.
15-29.	Men's pajamas.	38-32.	Hospital rubber sheeting.
16-29.	Wall paper.	39-32.	Wool and part wool blankets (in preparation).
17-32.	Diamond core drill fittings (second edition).	40-32.	Surgeons' rubber gloves.
18-29.	Hickory golf shafts.	41-32.	Surgeons' latex gloves.
19-32.	Foundry patterns of wood.	42-32.	Fiber insulating board (in preparation).
20-30.	Staple vitreous china plumbing fixtures.	43-32.	Grading of sulphonated (sulphated) oils saponifiable types (in preparation).
21-30.	Interchangeable ground glass joints.	44-32.	Apple wraps (in preparation).
22-30.	Builders' hardware (nontemplate).		

NOTICE.—Those interested in commercial standards with a view toward accepting them as a basis of everyday practice in their industry, may secure copies of the above standards, while the supply lasts, by addressing the Division of Trade Standards, Bureau of Standards, Washington, D. C.